

## **NBSA Problem Formulation Document**

### **EPA resolution on comments and responses to comments**

RTC#1, General Organization: Concur that the document organization doesn't need to be revised; however, some text should be added to introduce the inclusion of human health risk elements within the Problem Formulation Document.

RTC#6, Modeling: The revised Problem Formulation Document should identify the model components that are under development and note that the revised CSM provides further information.

RTC#9, Next Steps: The revised Problem Formulation Document is to include a new table to identify selected Measurement Endpoints (MEs) and projected data collection timeframes.

RTC#18, Section 2.1, History, Page 2-1. : The discussion needs to be included in the PFD, since the February 2011 Draft CSM Document does not include mention of the Diamond Alkali site in its discussion of contaminant sources to Newark Bay; therefore. The comment will not be addressed by adding a reference to the CSM.

RTC #19, Section 2.2.1, Geographic Areas, Page 2-3.: The EPA does not agree with Tierra's response to comment no. 19, and finds that it is contradictory to the answer/rationale provided for response to comment no. 22 and inconsistent with response to comment no. 107. We did not agree to use the same geographical lines that were used in the SLERA for the BERA. The BERA should focus on habitat types and how the receptors use those areas in developing exposure point concentrations.

RTC# 20, Section 2.2.1, Geographic Areas, Page 2-3.: Please delete the sentence since the limits of investigation required for the NBSA are subject to modification.

RTC# 22, Section 2.2.2.1, Subtidal Flats, Page 2-5.: The distinction between these areas is important to sampling design and should be defined in the document, since the sediment and contaminant deposition 'chronologies' represented by 0-6 inch samples in each of these areas are expected to be different and both potential exposures need to be represented in the dataset.

RTC# 38, Section 3.1.1, Forested Areas, Page 3-11.: TSI was provided with documentation concerning presence of marine mammals in NBSA. The BERA should include quantitative risk characterization of representative marine mammals even if they are not common in the bay.

RTC# 48, Section 3.2.2, Sediment Data, Page 3-18, Last paragraph, Last sentence: As discussed during the BHHERA Workshop and subsequent conference calls, the EPA is ONLY allowing assessment of the contaminants already identified. The list of potential emerging constituent chemical stressors that will be evaluated will NOT be routinely updated.

RTC#50, Section 3.2.3.1, Tissue Chemistry Data, Page 3: The data for the American eel captured in Newark Bay is very limited and it may be necessary to collect additional data on lipid concentrations during the sampling event

RTC#69, Section 4.1.2, Updated COPEC Screen, Page 4-2.: The wording of the text in Section 4.1.2 seems to suggest that data must be both validated and peer-reviewed to be deemed usable; please verify that Section 4.1.2 correctly summarizes the Secondary Data Evaluation process.

RTC#75, Section 4.1.4, Constituent Fate and Transport: Please add references to these documents to the text of the Problem Formulation Document.

RTC#98, Section 4.2, Ecological Concept: EPA strongly disagrees with Tierra's response. The pathway (d) is complete. Please revise Figure 4-2 by replacing the "O" symbols under "Benthic Fish" receptor for the "Intertidal Sediment" exposure medium to "X/O" for both the "Ingestion" and "Direct Contact" exposure routes (pathways). A brief explanation should be added either in the figure or in the text referencing it.

RTC# 106, Section 4.3, Ecological Exposure Pathways and Receptors, Page 4-16, and Figure 4-2.: The statement that "no exposure pathway exists to ecological receptors from channel sediments" is categorically incorrect. Although recently dredged, the channels become recontaminated as contaminated fines transported into NBSA settle on the dredged surface relatively quickly; in addition, sloughing of the side slopes (which could cut through zones of legacy contamination) may also occur. The deeper water portions of the Bay associated with the channels also provide unique ecological habitat where certain demersal fish and blue crabs overwinter and refugia to certain fish species during the summer. The BERA should evaluate the channel as a separate habitat feature within the Bay

RTC#112, Section 4.3, Ecological Exposure Pathways and Receptors: Based on the documented presence of the Atlantic sturgeon in NBSA, it should be included on the list of T&E species. The response that it doesn't need to be included is unacceptable. In addition, a recent paper published in Environmental Toxicology and Chemistry (Chambers et al. , 2012) demonstrates that this species (as well as shortnose) are among the most sensitive of fish species to PCB 126 and TCDD exposures.

RTC#115, Section 4.3, Ecological Exposure Pathways and Receptors – Mammals, Page 4-17.: It was agreed during the meeting on 22 Feb 2013 that the mink would be retained as a candidate receptor.

RTC#122, Section 4.4.1, Plants, Page 4-18, Assessment Endpoint 1 and Table 4-3.: The AE should be revised to indicate "Survival and/or growth of aquatic plants..." per agreement from the 22 February 2013 meeting in NYC; use of "and/or" wording applies to all other AEs as well.

RTC#151, Section 4.4.4, Birds, Page 4-22, Testable Hypothesis, First paragraph, Second sentence and Table 4-3: Please modify comment response to more closely reflect meeting discussion, specifically that PRA may be needed to quantify the uncertainty in the food web modeling.

RTC#174, Figure 4-2: Please see note on Comment 98, EPA's assertion that certain pathways are complete.

RTC#179, Section 5.2, Human Exposure Scenarios, Page 5-1.: Information that is intended to support this assertion should be added to the CSM and reviewed in the forthcoming revised CSM document, and not included in the Problem Formulation Document.

RTC#189, Section 5.4.1, Recreational Users, Page 5-3.: Please further defend why recreational locations should not be mapped on the Hackensack River, since a portion of it is contained within NBSA.

RTC#191, Section 5.4.2, Commercial Users, Page 5-5.: The EPA agrees that we need to better understand the activities of the diver so that we can determine the potential exposures. The EPA will evaluate whether this is a completed pathway once Tierra submits the data for EPA to review, including a

description of diver decontamination procedures, if any. This information will inform whether we evaluate the pathway qualitatively or quantitatively.

RTC# 192, Section 5.4.3, Transient Users, Page 5-5.: Comments #192 and 205. The discussion regarding the transient individual should be qualitative. EPA is not recommending contacting organizations for this information but an internet search would be appropriate.

RTC#198, Sections 5.5.1 and 5.5.2, Page 5-8.: Agree that a qualitative discussion regarding boating is appropriate to be noted in the discussion but quantitative analysis is not appropriate.

RTC#201, Section 5.6.1, Land Use, Page 5-9.: Duck hunting may occur based on the regulations and should be noted in RAGS Part D Table 1. This pathway is to be qualitatively discussed in the document. The discussion should be supported by including information regarding the types of food ducks consume (i.e., they eat grass and not fish) that results in lower tissue concentrations, their residence time, and potential ingestion rates based on the bag limits.

RTC#209, Section 6, Next Steps.: Modify the text for the human health assessment to indicate that a Pathways Analysis Report will be submitted to EPA for review before the baseline human health risk assessment is developed.